

CLAIMS

1. – 45. (Cancelled)

46. (Previously Amended) The control device of claim 65 wherein the housing of the control device has a shape substantially similar to a firearm, said shape comprising:

- a central body,
- a handgrip extending downward from a rear section of the central body; and
- a barrel extending longitudinally forward from the central body.

47. (Original) The control device of claim 46, wherein the coordinate control unit further comprises:

- a y-axis sensor adapted to input information regarding a tilt of the barrel of the control device in a vertical direction; and
- an x-axis sensor adapted to input information regarding a tilt of the barrel of the control device in a horizontal direction.

48. (Original) The control device of claim 47, wherein the y-axis sensor further comprises:

- a horizontal shaft attached to a side of the barrel that rotates as the barrel is tilted upward and downward;
- a first optical disk attached to the horizontal shaft such that the optical disk rotates with the horizontal shaft; and
- at least one optical encoder adapted to correlate rotation of the optical disk to vertical tilt of the barrel to provide information indicating a desired vertical point of view of the avatar of the user in the video game.

49. (Original) The control device of claim 48, wherein the x-axis sensor further comprises:

- a vertical shaft connected to the y-axis sensor such that the vertical shaft rotates as the barrel is tilted left and right;
- a second optical encoder disk attached to the vertical shaft such that the second optical disk rotates with the vertical shaft; and

at least one second optical encoder adapted to correlate the rotation of the second optical disk to a horizontal tilt of the barrel to provide information indicating a desired horizontal point of view of the avatar of the user in the video game.

50. (Original) The control device of claim 46, wherein the coordinate control unit further comprises: at least one gyroscope adapted to provide input information regarding the vertical and horizontal tilt of the control device in order to provide information regarding a desired vertical and horizontal point of view of the avatar of the user in the video game.

51. (Cancelled) The control device of claim 46, wherein the coordinate control unit further comprises: at least one gyroscope adapted to provide information regarding the vertical and horizontal tilt of the control device in order to provide information regarding a desired vertical and horizontal position of a cursor on the display of the computer system.

52. (Previously Canceled) The control device of claim 46, further including a mouse button-type control unit adapted to be operated by the user in order to generate computer mouse button-type input information, wherein the mouse button-type control unit comprises:

- a wheel adapted to provide information to scroll up or down on the display;
- a left button adapted to provide information regarding selections of the user; and
- a right button adapted to provide information regarding other selections of the user.

53. (Previously Canceled) The control device of claim 52, further including:

a trigger extending downward from the central body in front of at least a portion of the handgrip;
and

wherein the wheel, the left button and the right button are mounted on a side of the central body of the control device such that positioning a finger of the user proximate to the trigger operates the wheel, left button and right button.

54. (Original) The control device of claim 46, wherein the game play control unit comprises:

a directional controller adapted to generate input information regarding longitudinal and lateral movement in space;

a plurality of buttons adapted to provide information regarding a plurality of actions performed on the display, the plurality of actions including two or more of running, crouching, jumping and special actions; and

a coordinate activation button adapted to selectively enable and disable input of information from the coordinate control unit to the computer system.

55. (Original) The control device of claim 54, wherein the plurality of buttons are positioned on the handgrip of the control device such that the plurality of buttons are operable by fingers of the hand of the user gripping the handgrip.

56. (Previously Amended) The control device of claim 55, further comprising: a foregrip, extending down from the barrel of the control device, wherein the directional controller is positioned on the foregrip and is operable by a thumb and fingers of another hand of the user gripping the foregrip.

57. (Original) The control device of claim 55, wherein the directional controller is positioned on the barrel of the control device.

58. (Original) The control device of claim 46, further including a trigger extending downward from the central body in front of at least a portion of the handgrip; and wherein the game play control unit further comprises a shoot button mounted on the trigger of the control device.

59. (Original) The control device of claim 46, further comprising a removable shoulder stock extending behind the central body of the control device and adapted to steady the control device against a shoulder of the user.

60. (Original) The control device of claim 46, further comprising a display unit mounted on the control device to provide additional image information to a user of the control device.

61. (Original) The control device of claim 46, further comprising a feedback unit adapted to provide tactile feedback to a user of the control device.

62. (Previously Amended) The method of claim 68, comprising:

providing a display control unit with a shape substantially similar to a firearm, the display control unit comprising a central body, a handgrip extending downward from a rear section of the central body, and a foregrip or barrel extending longitudinally forward from the central body.

63. (Original) The method of claim 62, wherein:

the display control unit is adapted to be grasped by two hands of the user, where:

the fingers or thumb of one hand, positioned on one of the handgrip, foregrip or barrel, operate one or more buttons adapted to provide input information regarding longitudinal and lateral movement of the avatar of the user on the display in space, while the fingers or thumb of the other hand, positioned on a different one of the handgrip, foregrip or barrel, operate one or more buttons adapted to provide input information regarding a plurality of actions performed by the avatar of the user on the display, the plurality of actions including one or more of running, crouching, jumping and selecting weapons, wherein both hands, in addition to providing the above-noted operation, provide stability to the device with respect to the vertical and horizontal tilt of the unit, as well as reducing fatigue in wielding the unit in a manner similar to a real firearm.

64. (Original) The method of claim 63, wherein the step of receiving information related to the vertical and horizontal tilt of the control device comprises:

receiving information regarding a tilt of the barrel relative to a centered vertical position of the control device from a y-axis sensor; and

receiving information regarding a tilt of the barrel relative to a centered horizontal position from an x-axis sensor.

65. (Previously presented) A control device for operation by a user for controlling a display of a computer system for use with a video game, the control device comprising:

a housing having a shape adapted to be handled by a user of a video game;

a coordinate control unit including a motion sensing arrangement which is associated with the housing, for sensing motion of said housing, said coordinate control unit generating input information related to a vertical and a horizontal tilt of the housing in response to said housing being handled by the user;

a game play control unit included within said housing adapted to be handled by the user for generating game play input information; and

a controller adapted to process the input information from the coordinate control unit to provide to the computer system changes in point of view information of an avatar in a video game virtual environment, and adapted to process said input information from the game play control unit to provide to the computer system game play information representative of at least changes in latitudinal and longitudinal position of the avatar in the video game virtual environment, thereby creating a unified representation of changes of the point of view of the avatar within the video game virtual environment, which unified representation encompasses both horizontal and vertical changes of the avatar's point of view within the video game virtual environment in response to handling by the user of the control device while not within the video game virtual environment, as well as latitudinal and longitudinal changes of the avatar's position as expressed within the point of view of the video game virtual environment, in response to handling by the user of the game play control unit while not within the video game virtual environment .

66. (Previously presented) The control device of claim 65, where said association of said motion sensing arrangement with said housing comprises a motion sensing device which is external to said housing, being coupled to said housing for sensing said motion of said housing.

67. (Previously presented) The control device of claim 66, where said coupling to said housing by said motion sensing device uses a mechanical linkage arrangement for mechanically sensing movement of said housing.

68. (Previously presented) A method for allowing a user to control a video game display of a computer system, comprising:

providing a video game control device with a housing having a shape adapted to be handled by a user of a video game;

generating information from a motion sensor which is associated with a coordinate control unit portion of the video game control device, said information being related to a vertical and a horizontal tilt of the housing of the video game control device in response to said housing being handled by the user, and being representative of point of view information of an avatar in a displayed video game virtual environment;

generating within the housing information from a game play control unit portion of the video game control device, said information being representative of at least changes in latitudinal and longitudinal position of the avatar in the displayed video game virtual environment; and

providing game information for controlling the video game virtual environment display of the computer system based on information generated by the coordinate control unit and providing game information for controlling the video game virtual environment display of the computer system based on information generated by the game play control unit , thereby creating a unified representation of changes of the point of view of the avatar within the video game virtual environment, which unified representation encompasses both horizontal and vertical changes of the avatar's point of view within the video game virtual environment in response to handling by the user of the housing of the control device while not within the video game virtual environment, as well as latitudinal and longitudinal changes of the avatar's position as expressed within the point of view of the video game virtual environment, in response to handling by the user of the game play control unit while not within the video game virtual environment.

69. (Newly added) The control device of claim 66, where said coupling to said housing by said motion sensing device uses an optically coupled arrangement for optically sensing movement of said housing.
70. (Newly added) The method of claim 68, where said step of generating information from a motion sensor comprises using a motion sensing arrangement which is external to said housing, said motion sensing arrangement including a portion which is optically coupled to said housing for optically sensing said motion of said housing.